AMENDMENTS TO THE CLAIMS

1. (Currently amended) A spectrometer, comprising:

an array of broadband infrared illumination sources of a same type positioned to differently illuminate different parts of a detection area by directing a plurality of differently directed beams of broadband infrared light that each include~~ing~~ energy at different infrared wavelengths toward the detection area from at least first and second different illumination source positions at the same time,

a two-dimensional infrared image detector positioned at a third position different from the first and second positions to receive infrared light from the sources reflected off of the different parts of a sample surface in the detection area,

a tunable filter positioned between the sample and the infrared image detector, and

a spectroscopic signal output responsive to relative amounts of infrared light from the different ones of the plurality of beams in different spectral regions received by the detector after reflection off of the different parts of the sample surface in the detection area and operative to convey two-dimensional spatial information about chemical properties of the sample surface based on the relative amounts of infrared light from the different beams received by the detector after reflection off of the different parts of the sample surface.

2-10. (Cancelled).

11. (Currently amended) The apparatus of claim 1~~9~~ further including ~~wherein the spectrally selective elements are~~ a plurality of reflectors each located in an optical path between one of the sources and the detector.

12. (Previously presented) The apparatus of claim 11 wherein the reflectors are at least generally parabolic.

13. (Previously presented) The apparatus of claim 11 wherein the reflectors are at least generally ellipsoidal.

14. (Previously presented) The apparatus of claim 1 wherein the sources are substantially the same.

15. (Cancelled).

16. (Currently amended) The apparatus of claim 1 wherein the spectrometer is a microscopic instrument ~~and wherein the sources each produce a luminous flux of at most about 10 millilumens lumens at the detection area.~~

17. (Currently amended) The apparatus of claim 1 wherein the spectrometer is a macroscopic instrument ~~and wherein the sources each produce a luminous flux of at most about 1 lumen at the detection area.~~

18-24. (Cancelled).

25. (Previously presented) The apparatus of claim 1 wherein the sources are incandescent sources.

26-27. (Cancelled).

28. (Previously presented) The apparatus of claim 1 wherein the sources are constructed from bulk semiconductor materials.

29. (Previously presented) The apparatus of claim 1 wherein at least a plurality of the sources are operatively connected to a single power supply.

30. (Previously presented) The apparatus of claim 1 wherein the illumination sources are positioned to illuminate different sub-areas of the detection area.

31-32. (Cancelled).

33. (Previously presented) The apparatus of claim 1 wherein the detector is a multi-element detector array.

34. (Previously presented) The apparatus of claim 1 further including a circular support for the array, and wherein the detection area is located along a central axis of the circular support.

35. (Previously presented) The apparatus of claim 34 wherein the circular support surrounds an optical path from the detection area to the detector.

36. (Previously presented) The apparatus of claim 35 wherein the detector is part of a microscope.

37. (Previously presented) The apparatus of claim 1 further including a spectral matching module responsive to the spectroscopic signal output and operative to perform spectral matching operations with one or more known substances.

38. (Previously presented) The apparatus of claim 1 wherein the detector includes a plurality of detector elements, wherein the detection area is divided into a plurality of detection sub-areas, and wherein each of the detector elements is aligned with one of the detection sub-areas.

39. (Cancelled).

40. (Previously presented) The apparatus of claim 1 wherein the array includes a plurality of substantially similar illumination sources.

41. (Currently amended) A spectrometry method, comprising:

illuminating a sample surface with a plurality of differently directed beams of broadband infrared light from different positions at the same time using broadband sources of a same type,

selecting wavelengths of interest from the broadband infrared light after it has reflected off of the sample surface in the step of illuminating using a tunable filter,

detecting from a third position a two-dimensional reflectance images of the sample surface resulting from the step of illuminating and at wavelengths selected by the step of selecting, and

deriving an infrared spectroscopic image signal from relative amounts of the infrared light from the differently directed beams detected by the step of detecting in different infrared spectral regions, wherein the infrared spectroscopic signal includes two-dimensional spatial information about the chemical properties of the sample surface at different wavelengths.

42-45. (Cancelled).

46. (Previously presented) The method of claim 41 further including the step of filtering ones of the plurality beams of light according to different filter characteristics.

47. (Previously presented) The method of claim 41 further including the step of concentrating the beams.

48. (Previously presented) The method of claim 47 wherein the step of concentrating includes a step of collimating.

49. (Previously presented) The method of claim 47 wherein the step of concentrating includes a step of focusing.

50. (Previously presented) The method of claim 41 further including the step of matching results of the step of deriving with known spectra.

51. (Previously presented) The method of claim 41 further including the step of evaluating the image to determine composition distribution within at least a portion of the sample.

52. (Previously presented) The method of claim 51 wherein the steps of illuminating, detecting, deriving, and evaluating are performed for pharmaceutical dosage units.

53. (Previously presented) The method of claim 51 wherein the steps of illuminating, detecting, deriving, and evaluating are performed for pathology samples.

54. (Previously presented) The method of claim 51 wherein the steps of illuminating, detecting, deriving, and evaluating are performed for biological tissue.

55. (Previously presented) The method of claim 41 wherein the steps of illuminating, detecting, and deriving are performed for pathology samples.

56. (Previously presented) The method of claim 41 wherein the steps of illuminating, detecting, and deriving are performed for biological tissue.

57. (Previously presented) The method of claim 41 wherein the step of illuminating employs a plurality of substantially similar beams of light.

58. (Currently amended) A spectrometer, comprising:

means for illuminating a sample surface with a plurality of differently directed beams of broadband infrared light from different positions at the same time using broadband sources of a same type,

tunable filtering means for selecting wavelengths of interest from the broadband infrared light after it has reflected off of the sample surface,

means for detecting from a third position a two-dimensional reflectance image of the sample surface resulting from the means for illuminating and at wavelengths selected by the means for selecting, and

means for deriving an infrared spectroscopic image signal from relative amounts of the infrared light from the differently directed beams detected by the means for detecting in different infrared spectral regions, wherein the infrared spectroscopic signal includes two-dimensional spatial information about the chemical properties of the sample surface at different wavelengths.

59-64. (Cancelled)

65. (New) The apparatus of claim 1 wherein the array of sources surrounds an optical path from the detection area to the detector.

66. (New) The apparatus of claim 1 wherein the sources are near-infrared sources.